

Name _____

Date _____

LESSON
8.1

Practice

For use with pages 550–557

Tell whether x and y show *direct variation*, *inverse variation*, or *neither*.

1. $y = 2x + 3$

direct
Direct

2. $y = \frac{x}{3}$

$y = \frac{1}{3}x$ Direct

3. $x = \frac{3}{y}$

Inverse

4. $\frac{1}{2}xy = 2$

Inverse

$Y = 4/X$

good!

The variables x and y vary inversely. Use the given values to write an equation relating x and y . Then find y when $x = 0.5$.

5. $x = 4, y = 6$

6. $x = 2, y = \frac{5}{2}$

7. $x = 48, y = \frac{1}{12}$

$y = \frac{a}{4x} = \frac{24}{x}$ $24/.5 = 48$

8. $x = -3, y = 2$

9. $x = \frac{4}{3}, y = \frac{3}{2}$

10. $x = \frac{1}{2}, y = \frac{1}{3}$

Determine whether x and y show *direct variation*, *inverse variation*, or *neither*.

11.

x	1	2	3	4
y	1	4	9	16

$Y = X^2$

good! Neither

12.

x	2	5	8	15
y	60	24	15	8

Inverse

13.

x	1	4	7	10
y	7.5	30	52.5	75

Direct

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LESSON
8.1**Practice** *continued*
For use with pages 550–557

The variable z varies jointly with x and y . Use the given values to write an equation relating x , y , and z . Then find z when $x = 4$ and $y = 7$.

14. $x = 3, y = 5, z = 30$

15. $x = 6, y = \frac{1}{2}, z = 24$

16. $x = \frac{3}{2}, y = 18, z = 9$

In Exercises 17–20, use the following information.

Simple Interest The simple interest I (in dollars) for a savings account is jointly proportional to the product of the time t (in years) and the principal P (in dollars). After fifteen months, the interest on a principal of \$2500 is \$78.13.

17. Find the constant of variation k .**18.** Write an equation that relates I , t , and P .**19.** What will the interest I be after ten years?**20.** What does the constant of variation k represent?

In Exercises 21–23, use the following information.

Boyle's Law Boyle's Law states that for a constant temperature, the pressure p of a gas varies inversely with its volume V . A sample of oxygen gas has a volume of 50.25 cubic milliliters at a pressure of 20.6 atmospheres.

21. Find the constant of variation k .**22.** Write an equation that relates p and V .**23.** Find the volume of the oxygen gas if the pressure changes to 15.2 atmospheres.